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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,149	02/11/2004	Curt D. Tudor	CA920030523US2	3074

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EXAMINER	
HOANG, PHUONG N	

ART UNIT	PAPER NUMBER
2194	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,149	TUDOR, CURT D.	
	Examiner	Art Unit	
	Phuong N. Hoang	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/3/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 10 are pending for examination.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1 - 10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 17 of U.S. Patent No. 6,714,958 (refer as 958). Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 would comprise substantially the same

elements as claims 1 and 2 of patent no. 459. Similarly, claim 9 would comprise substantially the same elements as claims 9 and 10 of patent no. 459. The differences between the patent no. 459 and this case is the claimed receiving a request from a first thread that hold at least one synchronization object to acquire a synchronization object and determining if another thread previously held the synchronization object while acquiring another synchronization object. It would have been obvious to one of ordinary skill in the art in fact that a first thread will be suspended after receiving and determining a request once the second thread is currently holding the synchronization object to avoid the deadlock.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 – 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. As to claims 1 and 9, the logic and language in the claim is confusing.

It is not clearly understood that there are how many threads (is there two threads, and another thread is the second thread).

How can the deadlock being evidenced if another thread **previously held** (currently not hold) the synchronization object when the first thread requests the synchronization object? As the concept of deadlock, the deadlock occurs when two threads try to acquire the same lock. Therefore, in the claim, suspending the first thread that request the synchronization object when the second thread **currently holds** the synchronization object. For examination purpose, examiner treats it as the second thread currently holds the synchronization object.

"receiving a request from a second thread to acquire the synchronization object while the first thread is suspended" and "allowing ...the synchronization object" (is the synchronization object refers to the second synchronization object). For examining purpose, examiner treats it as the second synchronization object

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 9 - 10 are not limited to tangible embodiments. In view of applicants' disclosure, specification paragraph [0025], the medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (CD-ROM, tape) and intangible embodiments (signal). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1 – 5 – 7 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sager, US patent no. 6,542,921.

11. **As to claim 1**, Sager teaches a computer implemented method of analyzing multi-threaded (multithreaded) programs, comprising (figure 3 and associated text and col. 1 lines 65 – col. 2 lines 25)

suspending (wait) a first thread (thread 1, element 301 request resource B) that requests a synchronization object that could result in a deadlock if acquired, the deadlock being evidenced by if another thread previously held the synchronization object while acquiring another synchronization object;

receiving a request from a second thread (thread 2, 0, element 305) to acquire the synchronization object (resource B) while the first thread is suspended;

allowing the second thread to acquire the synchronization object (305 acquire resource B).

Sager does not explicitly teach the step of awakening the first thread to potentially produce a deadlock. However, Sager teaches both thread are in the

condition of circular wait and neither thread will release the resource it has, so the deadlock occurs (col. 2 lines 15 – 25).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to recognize that while the thread in a circular wait for the resource, it would wake up to acquire the resource.

12. **As to claim 2**, Sager teaches checking whether the first and second thread are deadlocked by the first thread waiting to acquire a synchronization object that the second thread holds and the second thread waiting to acquire a synchronization object that the first thread holds (figure 3 and associated text).

13. **As to claim 3**, Sager teaches wherein the first thread is suspended for a predetermined time, meaning that the first thread awakens after the predetermined time expires (col. 8 lines 58 – 65).

14. **As to claims 4 - 5**, Sager teaches wherein the thread is also suspended on an event, meaning that the event awakens the first thread (col. 6).

15. **As to claim 7**, Sager teaches wherein only one thread can hold the synchronization object at a time (figure 3).

16. **As to claim 8**, Sager teaches wherein only the first and second threads can release synchronization objects that each holds (col. 8 lines 30 – 56).

17. **As to claim 9**, this is the product claim of claim 1. See rejection for claim 1 above.

18. **As to claim 10**, Sager teaches wherein the computer readable medium is selected from the group consisting of CD-ROM, floppy disk, tape, flash memory, system memory, hard drive, and data signal embodied in a carrier wave (col. 1 lines 30 – 36.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sager, US patent no. 6,542,921.

21. **As to claim 6**, Sager does not teach wherein the first and second threads can hold a plurality of synchronization objects at a time. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that one

thread can hold a plurality of synchronization objects as long as not any other thread request the objects.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong N. Hoang whose telephone number is (571)272-3763. The examiner can normally be reached on Monday - Friday 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ph

July 21, 2006

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